GUIDELINES FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT FOR THE RED RIVER FLOODWAY EXPANSION PROJECT

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1. PURPOSE

The purpose of this document is to provide guidance to the Manitoba Floodway Expansion Authority on issues that should be considered in the environmental assessment of the Red River Floodway Expansion Project (the Project), and information that should be contained in its Environmental Impact Statement on the Project.

These Guidelines have been prepared pursuant to the requirements of *The Manitoba Environment Act* and the *Canadian Environmental Assessment Act*.

2. INTRODUCTION

2.1 BACKGROUND

Consideration is being given to improving flood protection to the City of Winnipeg for a flood event of approximately 1 in 700 years. This would primarily be achieved by enlarging the current floodway channel.

The Project will be carried out by the Manitoba Floodway Expansion Authority (MFEA). MFEA is represented by:

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Manitoba Floodway Expansion Authority
200-155 Carlton Street
Winnipeg MB R3C 3H8

Components of the Project as identified by MFEA are:

1. Enlargement of the Floodway Channel;
2. Increasing the freeboard at the existing West Dike;
3. Modification of the bridges over the Floodway Channel;
4. Enlargement of the Outlet Structure;
5. Riverbank fortification and protection at and downstream of the Floodway Outlet;
6. Replacement of drainage structures where necessary along the east bank of the Floodway;
7. Replacement of the Inlet and Outlet structures at the Seine River Inverted Siphon;
8. Replacement of the City of Winnipeg Aqueduct under the Floodway;
9. Extension of a number of transmission lines that cross the Floodway;
10. Replacement of a number of miscellaneous crossings;
11. Improvements at the existing Floodway Inlet Control structure;

12. Incorporation of recreational facilities to the maximum extent practical;
13. Use of Floodway to control summer river water levels in Winnipeg.

Components of the Project are described in further detail in the report "Red River Floodway Expansion Project Description, July 2003" (the Project Description). A schematic showing the location of the existing Red River Floodway and its major components is attached to these Guidelines as Figure 1.

2.2 ENVIRONMENTAL ASSESSMENT REQUIREMENTS AND PROCESS

The Project is a Class 3 development as defined in the *Classes of Development Regulation* under *The Manitoba Environment Act*. Public hearings by the Manitoba Clean Environment Commission will be conducted for the Project in accordance with Manitoba's environmental assessment and licencing process. The provincial hearings will be conducted to review the environmental impact statement and issues raised by the public in the environmental assessment process. The Clean Environment Commission will report its findings and provide advice and recommendations to the provincial minister on matters considered in its hearings. A licencing decision under The Environment Act will consider the advice and recommendations provided by the Clean Environment Commission.

A screening is required for the Project under the *Canadian Environmental Assessment Act* (CEAA). Infrastructure Canada and Fisheries and Oceans Canada have decision making responsibilities in relation to the Project which requires that it first undergo an environmental assessment in accordance with the CEAA. Other federal responsible authorities may be identified as having decision making responsibilities with respect to CEAA in relation to the Project during the course of the assessment.

Under the provisions of the *Canada-Manitoba Agreement on Environmental Assessment Cooperation*, Manitoba and Canada have agreed that a cooperative environmental assessment will be undertaken. A Project Administration Team (PAT) has been established to administer the cooperative environmental assessment process. Accordingly, these Guidelines for the Preparation of an Environmental Impact Statement for the Red River Floodway Expansion Project have been developed to address specific issues and identify information to be considered in the environmental assessment of the Project. The Guidelines have considered public comments and input received from the Federal/Provincial Technical Advisory Committee (TAC).

All information generated in the cooperative environmental assessment process will be provided to federal responsible authorities for consideration in their screening. A draft of the federal screening report will be made available for public review and the comments received will be considered in finalizing the report and making a determination as required under the CEAA.

2.3 INTENT AND SCOPE OF THE ENVIRONMENTAL ASSESSMENT

2.3.1 INTENT:

The intent of preparing the environmental impact statement (EIS) will be to:

- describe the Project including its purpose, need and objectives;
- provide a description of the policy and regulatory framework within which the Project will be planned, built, maintained and operated;
- identify alternatives considered in the planning process and the criteria used in selecting the current Project;
- identify and characterize the existing environment in which the Project would be built and the expected environment within which it would operate;
- identify the potential environmental effects of the Project and their significance, as defined in the CEAA;
- describe the methods used to assess the potential environmental effects of the Project and their significance, including technical and scientific studies, local knowledge and experience of the public;
- provide a summary of the regional, provincial or national objectives, standards, guidelines and relevant land and resource related agreements which have been used in the evaluation of the significance of the environmental effects;
- describe consultations undertaken with the public and stakeholders as part of the assessment, the comments received and the consideration given to those comments;
- identify requirements for mitigation of potential adverse environmental effects, opportunities for enhancing environmental benefits, monitoring of project implementation and the environmental effects of the Project, follow-up to verify the accuracy of assessment predictions and the effectiveness of mitigation, and describe an adaptive management process that would be implemented should the project cause unexpected adverse environmental effects; and

- incorporate and reflect the ***Principles of Sustainable Development*** as contained in "***Towards a Sustainable Development Strategy for Manitobans***" and the policies under ***The Land and Water Strategy*** as contained in ***"Applying Manitoba's Water Policies."***

2.3.2 SCOPE:

The Project:

The environmental assessment for the Project shall include consideration of the environmental effects of all undertakings associated with the site preparation, construction, maintenance, operation and the final disposition of all components of the proposed Red River Floodway expansion, including any required infrastructure modification or development. The assessment must consider the purpose of the project and alternative means of carrying out the project that are technically and economically feasible.

The Assessment:

The scope of the environmental assessment shall include, but not necessarily be limited to, examination of:

- potential changes to the environment that may result from the Project, including consideration of effects to:
    - land, water and air;
    - the biological environment, including terrestrial and aquatic ecosystems, i.e. all organic and inorganic matter and living organisms;
    - present and planned resource use, including land and water; and
    - human health, socio-economic and cultural conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes by Aboriginal persons, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance that will be affected by any changes to the environment caused by the Project;

- the implications of the Project with respect to climate change and Manitoba's commitment to the Kyoto Accord;

- the significance of the environmental effects;

- the implications of the Project in terms of land and resource-related agreements;
- the environmental effects of potential malfunctions or accidents that may occur in connection with the Project;
- the environmental effects of any alternative means (including alternative methods of operation) of carrying out the Project that are technically and economically feasible;
- cumulative environmental effects of the Project that are likely to result from the Project when its effects are considered in combination with the effects of other projects or activities that have been or will be carried out;
- the effects of the influx of workers, equipment and materials on residents, land and resources of the region;
- a description of the consideration given to recycling and reuse of materials, energy efficiency, reduction of waste and other means through which the Project can promote sustainable development objectives;
- the technically and economically feasible measures that would mitigate any significant adverse environmental effects of the Project;
- the adequacy of measures proposed to mitigate adverse environmental effects of the Project and to address residual adverse effects, where appropriate;
- any change to the Project that may be caused by the environment;
- the need for, and requirements of, any follow-up program in respect of the Project; and
- the capacity of renewable resources, if any, that are likely to be significantly affected by the Project.

The geographic scope of the investigations shall include those local areas directly impacted by the undertakings associated with the Project and also the zones within which there may be environmental effects that are regional or global in their nature. The EIS should identify the spatial and temporal boundaries used in the assessment and the rationale for the selection of those boundaries.

3. POLICY AND REGULATORY FRAMEWORK

The environmental impact statement shall identify the legislation, policies, necessary approvals, land and resource related agreements and current planning initiatives

applicable to the review of the Project. The report shall discuss the primary focus of each regulatory or policy requirement, such as resource allocation, environmental protection, land-use designation or development control.

4. PUBLIC CONSULTATION AND INVOLVEMENT PLAN

Details of the overall public consultation plan for the environmental assessment shall be described. The plan will recognize all interested members of the public and describe the various means to provide for their participation in the assessment process. Generally, the public shall include, but is not limited to: Aboriginal peoples; other local residents; community groups; environmental groups; the private sector; municipal governments; and other interested parties. The public consultation plan shall be included in the environmental impact statement (EIS) and the results of the public's input to date reported and evaluated.

The EIS shall describe the proponent's public consultation plan that will have been undertaken with respect to the Project, including the following:

- the role of community contacts in the consultation program;
- the use of any communication tools employed to provide information to affected communities, including newsletters, television broadcasts, and briefing documents;
- the frequency and outcome of open houses, community meetings, school presentations, and other meetings, that were employed to provide information to, and collect information from the communities consulted; and
- plans for ongoing consultation with the affected publics following completion of the environmental assessment.

The environmental impact statement shall describe how concerns and issues raised by the public were incorporated into the development of the Project including its design, impact mitigation and monitoring. Any unresolved issues that were raised by Manitoba, Canada or stakeholders during the assessment process shall be discussed. In addition, efforts made to involve organizations and persons residing beyond the Project area in issue identification and problem resolution shall be documented and evaluated in the EIS.

5. PROJECT DESCRIPTION

5.1 OVERVIEW OF MANITOBA'S FLOOD PROTECTION SYSTEM

The environmental impact statement shall provide an overall description of Manitoba's flood protection system. Emphasis in the description shall be on those components that relate to the selection of the Project.

5.2 PROJECT ALTERNATIVES AND SITE SELECTION

The environmental impact statement shall include a summary discussion of the alternative means of carrying out the Project that were considered, and that are technically and economically feasible. This includes alternative operating scenarios for the Red River Floodway, including spring and summer operation. A discussion of the reasons for the selection of the preferred alternative shall be provided. A discussion of the potential environmental effects that were considered relative to any such alternative shall also be included. Consideration of alternative means for achieving the goals of the Project, for the purpose of the environmental impact statement, will include discussion of other processes or operations that could have been or could be implemented in the future, or locations that could have been chosen to achieve a similar end result. The purpose of and the rationale for selection of the Project shall be presented.

As well, the site selection process for all significant components of the Project shall be discussed in the EIS. The information presented will include the rationale for selection of the proposed sites (routes) along with how the technical, geotechnical and environmental criteria were considered in the decision making.

5.3 OVERVIEW OF THE RED RIVER FLOODWAY EXPANSION PROJECT

The environmental impact statement shall provide an overview of the Project, including a general description of the site selection process, construction, operation and maintenance of the facilities, and the final disposition of all components of the Project. The analysis must consider accidents, malfunctions and other risks. Included in this overview shall be the designed capacities of the Project, location of all its components on a site-development plan, phasing and sequencing of the various undertakings associated with the components, and a description of activities relating to the Project that have been undertaken to date.

5.3.1 SITE PREPARATION

The environmental impact statement shall describe all undertakings associated with preparing for construction at the sites. Detailed descriptions of timing and the methods

associated with the various undertakings that were and are required including surveying, clearing, establishing sediment and erosion control measures, test drilling, establishing dump and borrow areas, setting up camps and work areas, and the development of the infrastructure requirements to access and service the sites. This will include providing:

- topographical maps and aerial mosaics of suitable scale showing the location of all proposed project components, including but not limited to related access roads, work camps, borrow and disposal sites, placement of sediment and erosion control measures, storage and staging areas, power sources and utility corridors with inclusion of the local topography, watercourses, wetlands and lakes; and

- a description of the extent of clearing, excavation, dredging, quarrying and earthworks required to prepare for construction of the control structure, channel, bridges, outlet structure and infrastructure modifications, identification of borrow sites for construction materials such as sand, gravel, clay and stone, and the proposal for removal of waste materials including transportation methods.

5.3.2 CONSTRUCTION

The environmental impact statement shall describe all elements of the construction of the Project. Detailed descriptions of timing and the methods proposed for the various undertakings related to the construction of the principal components and related facilities (including facilities for other uses such as recreation) shall be required including the following:

- plans and descriptions of any existing works, temporary works including work areas, cofferdams, dewatering and control facilities, diversions, detours and the proposed temporary and permanent facilities including the control structure, dykes, channel, outlet structure, roadway and railway bridges, buildings and infrastructure;

- a description of the installation, operation and removal of any temporary infrastructure;

- a description of the proposed construction methods that could nave an effect on the environment such as those required for placement and removal of cofferdams, underwater or near-water blasting (if required), large scale clearing, dredging, bank protection, destruction of watercourses, grading or earth removal and disposal, including a discussion of possible alternative construction methods;

- an estimate of the size and composition of the workforce required during different times of construction;

- a description of measures that will be taken to protect the health and safety of workers and the general public in and around the construction areas;

- a description of the work staging areas and facilities provided for construction workers, including potable water supply and waste disposal;

- a description of the character and volumes of waste streams generated during the construction phase of the Project and how each waste stream would be managed, consistent with best industry practices, with specific references to waste oil and other potentially hazardous or recyclable material;

- a description of the proposed environmental surveillance and monitoring proposed during construction along with proposed contingency plans that consider the effects associated with serious malfunctions or accidents;

- a description of the proposed construction schedule including sequencing of the various undertakings; and

- subsequent removal of work staging areas and clean up of construction infrastructure.

5.3.3 OPERATION AND MAINTENANCE

The environmental impact statement shall describe how the floodway, Red River Channel and related infrastructure (including infrastructure related to other uses of the Project) would be operated and maintained under all operating conditions. Any differences in operating rules between the existing and expanded floodway should be discussed. A discussion of river flows and levels with and without the expanded project in place shall be provided. The description will include, but not be limited to:

- discharges above and below the control structure, and in the floodway channel;

- water surface elevations at the same locations and at additional upstream and downstream affected locations under a range of flow conditions; and

- liabilities associated with the various operational scenarios.

The environmental impact statement shall:

- describe how the proposed operation of the floodway would affect the existing operating regime along the Red River and its tributaries, and its relationship to existing regulatory licences/approvals and agreements, including local zoning and land use approvals;

- describe the current and future use of the St. Andrews Lock and Dam; and

- describe the size and composition of the proposed labour force involved in the operation and maintenance of the floodway, along with a description of measures that will be taken to protect the health and safety of workers and the general public in and around the various facilities including spill prevention and contingency planning.

5.3.4 FINAL DISPOSITION

The environmental impact statement shall provide a general description of plans for rehabilitating the operational components of the floodway and related infrastructure at the end of their operational life.

6. DESCRIPTION OF THE EXISTING ENVIRONMENT

The environmental impact statement shall describe the existing environmental setting for the Project. This will include a broad overview of the local area and the spatial and temporal zones within which there may be environmental effects that are regional or global in their nature. The methods used to identify impact areas or zones of influence as local, regional or broader in scope should be specified in relation to specific environmental effects under consideration. This description is intended to provide a context for a detailed understanding of the potential effects of the project. A description of any deficiencies or limitations in the existing environmental database shall be reported. Plans to collect any required additional data shall be described.

The environmental impact statement shall provide a discussion of the rationale for the determinations taken regarding the spatial and temporal boundaries chosen for the study areas used for the assessment.

6.1 PHYSICAL ENVIRONMENT

The environmental impact statement shall describe:

6.1.1 GENERAL:

- general climate conditions with sufficient data provided to predict the effect of the project on climate and the potential effects of climate on the Project over time;
- local air quality potentially affected by the Project;
- ambient noise levels in the project area; and
- local and regional soil, land use and geology.

6.1.2 HYDROLOGY AND HYDROGEOLOGY:

- local and regional hydrogeology;
- existing range of flows and water levels in the context of the operation of the existing flood control system;
- ice conditions, including changes during the winter and variability from year to year;
- existing shoreline environment and the rate of shoreline erosion and recession based on long term monitoring programs; and
- nature and extent of existing sediment deposition and shoreline debris.

6.2 AQUATIC ENVIRONMENT

The environmental impact statement shall describe the existing aquatic biological resources and associated habitat in watercourses, wetlands and other waterbodies. The environmental impact statement should establish a suite of biotic and abiotic indicators for the area including a discussion of the rationale for their selection. The environmental impact statement shall describe:

6.2.1 WATER QUALITY:

- sufficient detail shall be provided regarding the pre-project water quality and temperature parameters to predict the effect of the Project on surface water and groundwater quality and how it would relate to human consumption, recreation and aquatic biota, and to compare post-project water quality conditions.

6.2.2 LOWER TROPHIC LEVELS:

- sufficient detail regarding existing primary producers and decomposers shall be included to provide a basis to predict the potential effect(s) of the Project on energy (food) production.

6.2.3 AQUATIC INVERTEBRATES:

- sufficient detail respecting the existing species composition and abundance of aquatic invertebrates shall be provided in order to assess the overall productivity of the aquatic eco-system, biodiversity, and potential effects on fish populations and their range.

6.2.4 FISH AND CLAM HABITAT:

- sufficient data on bathymetric mapping, groundwater upwelling, erosion and sedimentation patterns, substrates, habitat classification and quantification within the study area shall be required to provide a basis for predicting project effects and to quantify the effects of the Project on fish and clam habitat; and

- a discussion shall be provided on how applicable provincial and federal policies for fish habitat, including the "No Net Loss Guiding Principle" will be achieved.

6.2.5 FISH AND CLAM POPULATIONS:

- sufficient data regarding species composition and relative abundance, critical life stages and requirements of key fish species, movements and migration patterns, habitat use and fish quality (mercury and heavy metal levels/fish health/palatability) shall be provided to predict the effects of the Project on fish populations within the study area.

6.2.6 AQUATIC SPECIES AT RISK:

- Any aquatic species found in the study area that is listed in Manitoba's *Endangered Species Act*, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or the federal *Species at Risk Act* shall be identified.

6.3 TERRESTRIAL ENVIRONMENT

The environmental impact statement shall describe:

6.3.1 VEGETATION:

- information on plant communities, "Species at Risk", and "Rare Species" that may be affected by the Project shall be provided in sufficient detail to predict the effect of the Project on vegetation in the study area. This includes medicinal plants, riparian and wetland vegetation, indigenous vegetation including tall grass prairie, and type(s) of vegetation to be flooded and/or cleared.

6.3.2 WILDLIFE AND WILDLIFE HABITAT:

- animal species (birds, including waterfowl and non-waterfowl species, mammals, plus available data for microorganisms, insects, reptiles and amphibians), populations, habitat and seasonal use patterns shall be provided;

- threatened and endangered animal species found in the study area shall be identified;

- important ecological communities representative of the study area by key species shall be provided;

- a description of the seasonal use of wetlands by waterbirds for breeding and moulting and spring and fall staging shall be included;

- migratory populations including migratory birds in the study area shall be identified, including a description of seasonal habitat usage;

- known habitat and critical areas for deer and furbearers;

- any animal species found in the study area that is listed in Manitoba's *Endangered Species Act,* the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or the federal *Species At Risk Act* shall be identified;

- sufficient information on wildlife populations and wildlife habitat in the study area to predict, avoid and mitigate, to the extent practicable, the effects of the Project on wildlife habitat and populations in the study area shall be provided; and

- a discussion of the Manitoba Protected Area Initiative as it relates to the Project, including references to the Capital Region and to natural regions impacted by the Project.

6.4 SOCIO-ECONOMIC ENVIRONMENT

The environmental impact statement shall describe:

6.4.1 RESOURCE USE:

- sufficient detail regarding domestic, commercial and recreational use of resources, including fish, clams, wildlife, vegetation and water shall be provided to predict project related effects; and

- lands and resources uses for traditional purposes by Aboriginal communities.

6.4.2 ECONOMY:

- a general description of the economic base of communities potentially affected by the Project shall be provided including the state of the labour force, employment, unemployment, and a profile of existing economic sectors; and

- sufficient detail regarding the existing economy of the region shall be provided in order to predict the effect of the Project on the economy of affected communities.

6.4.3 INFRASTRUCTURE AND SERVICES:

- a general description of the infrastructure and services of communities affected by the Project under all operating conditions shall be provided in sufficient detail to predict the effect of the Project on infrastructure and services of affected communities, including road networks and utilities.

6.4.4 PERSONAL, FAMILY AND COMMUNITY LIFE:

- a general description of the personal, family and community life of communities potentially affected by the Project shall be provided, including a population and demographic profile, outdoor recreation and travel, aesthetics, health status and health issues, way of life, culture and spirituality and community cohesion and organization;

- a general description of the personal, family and community life of Aboriginal communities potentially affected the Project; and

- sufficient detail on the noted items shall be provided to predict the effect of the Project on personal, family and community life.

6.5 HERITAGE RESOURCES

The environmental impact statement shall describe:

- historic land use and occupancy in the study area;
- archaeological sites and culturally important sites in the study area, including shoreline sites that could potentially be affected by erosion;
- location of potential burial sites in the study area (if any);
- archaeological sites and culturally important sites located on or near shoreline areas in the study area that could potentially be affected by erosion. Identification of these sites shall be provided using the work of the Historic Resources Branch as the basis for this description;
- any structure, site or thing that is of historical, archaeological, paleontological or architectural significance in the study area that will be affected by any changes to the environment caused by the Project; and
- a ranking of any archaeological sites identified in order of importance.

7. ENVIRONMENTAL AND SOCIO-ECONOMIC EFFECTS AND MITIGATION

The environmental impact statement shall provide information on all environmental, social and economic effects including socioeconomic effects arising from the biophysical effects associated with the Project, including effects on public health and safety. Both positive and adverse effects shall be described quantitatively and qualitatively. The following criteria will be used to evaluate the significance of adverse effects:

- nature of the effect;
- magnitude of the effect;
- duration of the effect;
- frequency of the effect;
- reversibility of the effect;
- temporal boundaries (short or long term);
- spatial boundaries (project site, local area or regional);

- ecological context (sensitivity to environmental disturbance – for environmental effects); and

- non-compliance with legislation, regulations and policies.

The environmental and socio-economic effects and associated mitigation shall relate to each phase of the Project including site preparation, construction and post construction, operation, maintenance and final disposition, and shall assess all components of the environment in the context of section 6 of these guidelines entitled DESCRIPTION OF THE EXISTING ENVIRONMENT. The assessment shall consider scientific analysis of ecosystem effects, along with local knowledge and available experience in determining the significance of potential effects. Mitigation and habitat enhancement measures to manage or avoid adverse effects shall be described for these components and for each undertaking in relation to the Project.

Cumulative effects assessment (CEA) shall form an integral part of the environmental and socio-economic assessment. The cumulative effects assessment shall examine all effects that are likely to result from the Project when they are anticipated to occur in combination with other projects or activities that have been, or will be carried out. The environmental impact statement shall explain the approach and methods used to identify and assess the cumulative effects and provide a record of all assumptions and analysis that support the conclusions, including the level of confidence in the data used in the analysis.

All assessment conclusions shall be supported by technical information based on experience in Manitoba and elsewhere as well as local knowledge. Any deficiencies in the information about potential effects shall be clearly noted and addressed as stated in section 9 of these guidelines entitled ENVIRONMENTAL MONITORING, FOLLOW-UP AND MANAGEMENT.

8. RESIDUAL EFFECTS

The environmental impact statement shall describe the nature and extent of any residual environmental effects of the Project (after the full implementation of the mitigation), and include a characterization as to whether residual environmental effects are significant or insignificant, and the rationale for such characterization. It shall provide a detailed plan for responding to any known or predicted residual effects, and provide a procedure for identifying and responding to effects that were not predicted or foreseen.

9. ENVIRONMENTAL MONITORING, FOLLOW-UP AND *MANAGEMENT*

The environmental impact statement shall provide a detailed description of the proposed monitoring and follow-up activities should the project proceed. These activities should focus on the effects of the project on the physical, aquatic, terrestrial and socio-economic environments arising from the site preparation, construction, maintenance and operation of the Project. The environmental impact statement shall describe the equipment to be used, the parameters to be measured, the methodology and frequency of measurement and the mechanism for reporting results of proposed monitoring of the environmental conditions affected by the Project.

The environmental impact statement shall describe how the proposed monitoring and follow-up activities will help to verify and manage environmental effects, confirm the performance of mitigation and habitat enhancement measures to be employed, and/or contribute to the resolution of compensation issues. The EIS should also describe an adaptive management process that could be implemented in the event that the project has unexpected adverse effects or when mitigation measures may not be effective.

If regulatory approval for the Project is provided, a project-specific Environmental Protection Plan (EPP) shall be developed prior to construction. The EPP will be designed to commit the proponent to a long term monitoring and mitigation program, including accountability and reporting requirements, that would encompass both the construction and operational phases of the Project in order to confirm predictions of effects and to determine whether unexpected effects are occurring. The EPP should commit to the principles of adaptive management in addressing any unexpected effects. The EPP shall be developed to accomplish the following goals:

- to facilitate the mitigation of environmental effects throughout the full lifecycle of the Project by providing field construction and operating personnel with clear instructions on the mitigation measures to be implemented and on the appropriate lines of communication and means of reporting to be followed;

- to identify modifications to construction methods or schedules, summarize environmental sensitivities and mitigation actions, list emergency response plans and reporting protocols, describe a closure plan for aggregate quarries, including mitigation of potential hazards to public safety and mitigation to address land reclamation concerns;

- to provide specific information on waste management practices to be utilized during the construction phase of the Project, including consideration of all liquid and solid wastes generated;

- to provide specific information on the management of hazardous materials;

- to plan for the management of contingencies; and
- to monitor construction practices to ensure that the work proceeds in accordance with the EPP.

10. PROJECT SUSTAINABILITY

An assessment shall be provided of the balance between the environmental/ecological, social, economic, cultural and human health benefits and opportunities and impacts of the Project. Indicators and methodologies used in this assessment shall be explained.

11. SOURCES OF INFORMATION

All assessment conclusions shall be backed up by credible technical information and local knowledge. The environmental impact statement shall describe the primary sources of information used to conduct the environmental assessment of the Project. This information shall include:

- technical studies of similar facilities and processes which are operating elsewhere;
- original studies performed by qualified engineers or scientists commissioned by the proponent specific to the Project;
- identification of facility design documents prepared by qualified engineers as they become available;
- scientific and technical reports and papers on topics relevant to the Project; and
- local knowledge.

Credible analysis and documentation shall support all conclusions of "no or insignificant effect".

12. REPORT FORMAT

The Environmental Impact Statement for the Project shall include an executive summary to be written with a minimum of technical terminology and shall include a glossary of terms used throughout the document.

The information in the environmental impact statement shall maximize the use of maps, charts, diagrams and photographs for presentation. To the extent possible, maps and diagrams shall be presented at a common scale, appropriate to represent the level of detail

considered, and where possible, allowing for direct overlay for ease of reference. Specifically, maps indicating zones of effect on land and water use and habitat areas shall be on maps of a common scale.

Deficiencies in scientific evidence shall be identified, including areas where there is no evidence specific to Manitoba.

For clarification of these Guidelines please contact PAT through Mr. Bruce Webb at:

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